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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Katia Georgopoulos et al.
Serial No. : 09/259,389
Filed : February 26, 1999
Title : THE HELIOS GENE

Art Unit : 1632
Examiner : Joseph Woitach

Commissioner for Patents
Washington, D.C. 20231

DECLARATION OF KATIA GEORGOPOULOS UNDER 37 C.F.R. §1.131

I, Katia Georgopoulos, declare as follows:

1. I am an inventor on the above-captioned patent application.

2. The claimed nucleic acid invention was first conceived and reduced to practice in the United States by the inventors prior to February 4, 1998, the publication date of Hahn et al. (GenBank™ Accession Number AF044257). Attached as Exhibit A is a true copy of a record which reports experiments setting forth the nucleotide sequence of a murine Helios cDNA. The date of the sequence analysis of Exhibit A, which is obscured in this copy as permitted by the Manual of Patent Examining Procedure § 715.07, is prior to February 4, 1998.

3. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

09/27/00

Date

Katia Georgopoulos

20128501.doc

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, Washington, D.C. 20231.

September 29, 2000

Date of Deposit

Signature
Uta G Gray

Typed or Printed Name of Person Signing Certificate

mHeliosCod Map (1 > 1732) Site and Sequence
 Enzymes: 70 of 146 enzymes (Filtered)
 Settings: Linear, Certain Sites Only, Standard Genetic Code

EcoRI	XhoI	XmaIII	KspI	NotI	TthI
GAATTCGATTACTACCAATAGGGCTCGAGCGGCCGCCGCGCAGGCTTTCAGCCGACATGTGCACCTCC					70
CCTAAGCTAATGAGTGGTATCCCGAGCTCGCCGCGCGGCTCCAGAGTCCGGCTGTAAACAGTGGAGG					
GJRLLTIGLEERPAPAQVFSP					
EcoNI				CCAACTGCAG	
TCCTGAGGCTTAGAAGAAGCTGGCGCTCCCGACAGAGCTGGAATCCACTTTGACTATGGAA					140
AGGAATCCCGAATCTCTTCGACCCGCGAGGCTGTCTGACCTTTACGTGACGTGAACGTGATACCTT					
PGLRRSWALPTELEMHCTLTME					
				BglI	
ACAGACGCIATTCATGGCTATATAACATGTGACAAATGAGCTTTCACCCGAAAGGGGAACACAGCCCAATATGG					210
TGCTCGGATAACACCGATAATGTGACACTGTACTCGAAAGTGGCTTCCCTTGTGCGGTATACC					
TDADIDGYITCDNELSPEGEHANM				StuI	
CCATGACCTCACCTCAGCAGCCCAATGGACAGCAGGCTTCGCCAAGTCACATGACAGGCACAAATTC					280
GGTAACTCGAGTGGAGTTCGTGCGGTTACCTGTCTCCGAGCGGTTACGTACTGTCTGTTTAAAG					
AIDLTSSTPNGQOASPSHMTSTNS				EcoRI	
				Ksp632I	
TGTAAGCTGGAAATGCAGAGTGTGAAGAGTGTGACAGGACGCCCTGAGCCTGAGGATGAGATCAGG					350
ACATTCGACCTTACGTCCTCACTACTTCTCACACTGCTCGGCGGACTCGGACTCCCTACTCTAGTCC					
"KLEMSDEECDCPLSREDIR				EcoRI	
				Ksp632I	
GCCACGATGAGGGAGCAGCCTAGAAGAGGCCCTAATTGAGAGCAGCAGGTGGCCGACACAGGAAG					420
CCGGTGTACTCCCTCGTCGGATCTCTCCGGGATTAACCTCGTCTGCTCCACCGGCTGTGTCTTTC					
GHD EGSSLEEAALIESSSEVA DNRK				AatII	
TCCAGGACCTTCAAGGCGAGCAGGAATCCGGCTTCGGAATGGTAACTGAAATGTGAGCTGTGGCAT					490
AGGCTCTGGAAGTTCGGCTCGCTCCTTAGGCCGAGGCTTACCACTTTGACTTTACACTGCAGACACCGTA					
VQDLGGERRGIRLPNGK L K C D V C G M					

5' F Pst
 PRSETC

- 1) 325 bp frag → amplify by PCR
- 2) digest PCR frag and vector with Pst and EcoRI
- 3) Run gel; purify from gel slice
- 4) ligate
- 5) transform bup.
- 6) pick colonies + determine which has correct clone

5' RRI

460
 155
 225

mHeliosCod Map (1 > 1732) Site and Sequence

Apa I

GGTTTGCATTGGGCCCAATGCTTATGGTACATAAAAGGAGTCACACTGGTGAGCGCCCTTCCACTGT
CCAAACGTAACCCGGTTACACGAATACCATGTATTTTCCCTCAGTGTGACCACCTCGCCGGGAAGGTGACA

560

V C I G P N V L H V H K R S H T G E R P F H C
AACCAGTGGGACGTTCTTTTACCCAGAAGGCMACCTTCTGAGACACATAAAGTTACRKYTGGRGARA
TTGTCACGCTGCAAGAAATGGGCTTCCGKTGGAAGACTCTGTGTATTTCAATGYMRACCCTCTT

630

N O C G R S F T O K G ? L L R H I K L ? ? G E
OxaNI

AGCCSTTCAAAATGTCCTTTCTGTAGTATGCTTGTAGAAGAGGGACGCTCACAGGACACCTCAGGAC
TCGSAAGTTTACAGGAAGACATCGATACGAACATCTTCTCCCTGGAGAGTGCTCTGTGAGTCTCTG

700

K P F K C P F C S Y A C R R R D A L T G H L R T
PflM I

CCATTCTGTGGGTAACCTCACAAAGTGTACTACTGTGGCGAAGCTACAGGAGCGGACGTCACCTGGAG
GGTAAGACACCCATTGGAGTGTTACATTGATGACACCGGCTTCGATGTTCTGCGGTGCGAGTCACTC

770

H S V G K P H K C N Y C G R S Y K Q R T S L E
BspHI

GAACACAAGGAACGCTGTACAACTATCTCCAGAATGTCCAGATGTCAGGCTGCGGCGGAGGTCATGAGTC
CTGTGTTCTTGGACAGTGTGATAGAGGCTTACAGTGTACCTCCGACGCGCCGTCCAGTACTCAG

840

E H K E R C H N Y L O N V S M E A A G Q V M S
SspI

ACCATGTACCGCTATGGAAGATTGTAAGGAACAAGAGCCCTATCATGACACAATATTTCTCTGGTTGC
TGGTACATGGCGGATACCTTCTAACATTCTTGTCTCGGATAGTACTGTGTATAAAGAGACCAACG

910

H H V P P M E D C K E Q E P I M D N M I S L V A
TTTTGAGAGACCTGCTGTATAGAGAAGCTCAGGCAATATGGGAAGCGCAAAAGCTCCACTCTCTCAG
AAACTCTCTGGAGGACAGTATCTCTCAGTGCCTTTATACCTTTCGCGTTTCCAGGTGAGGAGTC

980

F E R P A V I E K L T A N M G K R K S S T P Q
Hind III

AAGTTTGTGGGAAAGCTTATGCGATTTCAGCTACCCAGATATTCATTTTCATATGAACCTTAACATATG
TTCAACACCCCTTTTCGAATACGCTAAGTCGATGGGTCTATAAGTAAAGTATACTTGAATTGTATAC

1050

K F V G E K L M R F S Y P D I H F H M N L T Y
EspI

AGAAGGAGGCTGAGCTGATGAGTCTCATATGATGAGCAGGACCATCAACATGCAATCACCTACCTTGG
TCTTCTCCGACTCGACTACGTCAGAGTACTACTGTTGCGTAGTTGTTACGTTAGTGGATGGAACC

1120

E K E A E L M Q S H M M D O A I N N A I T Y L G

mHeliosCod Map (1 > 1732) Site and Sequence

AGCTGAGGCCCTTACCCCTCTGATGACGATGACCAACGACAAATCGGTGAGGTGGCCCGAGTTATAAGC 1190
TCGACTCCGGGAAGTGGGAGACTACGTCGTACGTGGTTCGTTAGCGACTCCACCGGGGTCAATATTCC
A E A L H P L M O H A P S T I A E V A P V I S
TCAGCTTATCTCAGGTCATCATCCAACAGGATAGAAAGCCATTAGCAGGGAACCATCTGATAGTC 1260
AGTCAATAAGAGTCAGATAGAGTTTGCTCTATCTTCTGGGTAATCGTCCCTTTGTAGACTATCAG
S A Y S O V Y H P N R I E R P I S R E T S O S
Sph I Sal I Sma I
ACGAAACAACATGATGGGCCCACTCTCTCATCAGACCAGAGATCGACCCAGGAAGAGAGAGCCCTC 1330
TGCCTTTGTGACCTACCGGGTAGAGAGTAGTCTGGTTCTCAGCTGGGGTCTTCTCTCCGGAG
H E N N H D G P I S L I R P K S R P O E R E A S
GCCCAACAATAGCTGCTCGATTCTACTGACTCAGAAAGTAGCCATGATGACCGCAGTCTCTACCAAGBA 1400
CGGTCGTTATCGACGGAGCTAAGATGACTGAGTCTTTCATCGGTACTACTGGCGGTCCAGATGGTTCTT
P S N S C L D S T D S E S S H D D R O S Y O G
AACCTGCTTTAAATCCCAAGAGGAACAAAGCCAGCTTACATGAAGGAGGATGTCAAGGCTTTGGATG 1470
TTGGACGGAATTAGGTTCTCTTGTTCGGGTGGAATGACTTCTCTCTACAGTTCGGAACCTAC
N P A L N P K R K Q S P A Y N K E D V K A L D
CTACCAAGGCCCAAGGCTCTGAGGACATCTATAGGTTTTCATGGAGAGGAGGAACAGATAAG 1540
GATGTTCCGGGGTCCCGAGAGACTTCTGTAGATATTCCAAAGTTACCTTCTCTTGTCTATTC
A T K A P K G S L K D I Y K V F N G E G E Q I R
Xba I Tth I BstX I Nco I
GGCTTCAAGTGTGAGCACTGCCGAGTCTTTTCTAGACCAATGTCATGACACCATTCACATGGGTTC 1610
CCGGAAGTTCACACTCGTGACGGCTCAGGAAAGATCTGGTACAGTACATGTGGTAAGTGACCCAACG
A F K C E H C R V L F L D H V H Y T I H M G C
Bsm I
CATGGCTACCGGACCCACTGGAAATGCACACATCTGTGGCTACAGAGCCAGGACCGCTACGAATTTTCAT 1680
GTACCGATGGCCCTGGGTGACCTTACGTTGTAGACACCGGATGCTTCGGTCTGGCGATGCTTAAAGTA
H G Y R D P L E C N I C G Y R S O D R Y E F S
Bsm I
CACACATTGTGGGGGCGAGCACACAATCCACTAGCGGTTTGCAATTCCAAGG 1732
GTGTGAACAACCCCCGTCGTGTGTAGGTGATCCGCAACGTAAGGTTC
S H I V G G Q H T F H . A F A F O G